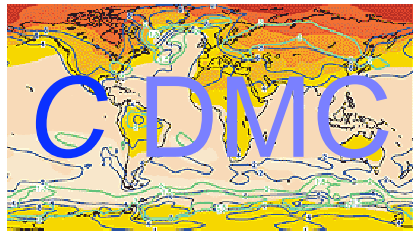




Understanding the Gap between the theory and practice of GHG Reductions



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Intro

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MY GOAL

- Help accelerate the adoption of low GHG technologies in British Columbia -- both in the public and private sectors.
 - ☒ 70% GHG reductions
 - ☒ Proven technology
 - ☒ "Compete" with received wisdom about the economics of current technology

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THIS PRESENTATION

- Aims to provide a description of real world challenges to realising the promise of such technologies.
- Concludes with a discussion of whether/ which barriers could be addressed through targeted interventions.

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THE TECHNOLOGIES

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- Biodiesel from canola

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- Ground-source heat-pumps at the district scale

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- Hot in-place repaving



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BIODIESEL

- Production
 - 17 Mt of Canola production capacity
 - 7 Mt of contracts for production
 - 40% oil, 60% high protein feed
 - 85% lower lifecycle GHGs than dinodiesel
- Combustion
 - 25% more efficient than gasoline
 - NO_x and PM lower than dinodiesel

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BIODIESEL

- **Missing:**
 - Multinationals with EU experience
 - Technology assessment services
 - Risk appraisal by financial institutions
 - Legal framework for GHG credits
- **Available in spades:**
 - Subsidies (>\$1.80/Gal. in USA, ~90¢ in Canada)
 - Willing punters!

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GROUND-SOURCE HEAT-PUMPS

- Technology
 - Same principle as a refrigerator
 - 400+% more efficient at space heating than highest efficiency gas units.
 - ~8k more expensive per home if installed in new builds.
 - Less expensive still if the geo-wells are common property of an apartment building or block.
 - Least expensive when combined with cooling services at the district level.



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GROUND-SOURCE HEAT-PUMPS

- **Missing:**
 - Installation standards & skills.
 - Appreciation for the potential of this technology.
 - Appetite for municipal govt. to launch new utility service along sewer and water.
- **Available in spades:**
 - Willingness for inexperienced installers to capture rent



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HOT IN-PLACE REPAVING

- Technology
 - Uses heat to soften asphalt, remove, dry, recondition, and relay it in one process.
 - Can repave 2+ miles of road-lane per day
 - Directly recycles 85+% of existing material
 - Costs 30-40% less than conventional (Mill & Fill)
 - Direct GHG emissions reductions of 50-70%
 - Improved pavement leads to 0-10% fuel savings
 - Better pavement reduces traffic accidents



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HOT IN-PLACE REPAVING

- **Missing:**
 - Engineering consultants who understand the difference.
 - Opposition to alternative due to impact on landscapes from quarrying for aggregate.
 - Support for better paved roads.
- **Available in spades:**
 - Companies willing to switch.
 - Opposition from suppliers to conventional pavers.



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SUMMARY

- Regulations can haphazardly induce the creation of:
 - Design standards & Installer certification
 - Technical assessment
 - Financial assessment
 - Legal support
 - Foils against structural constraints
- Or policies should do so deliberately and before loss of public confidence.

